

(July 19, 1922)

Extension of the Dewey Decimal Classification

Applied to Radio

Introduction

Need for Classification.- The Radio Laboratory of the Bureau of Standards has, in common with other workers in the radio field, felt the need for a systematic scheme of classification for subjects in radio science and engineering. This need has been felt not only for use in classifying the references to current radio publications but also for classifying other radio material such as drawings, books, reports, etc. In an effort to fill the need for a radio classification the present extension of the Dewey decimal system has been prepared.

Such a system makes it easy to place books on related subjects near together on the shelves or to file references on the same subject all in the same group and not by the order of their addition to the collection or file. If a classification is to be of the most use any part of it must be capable of expansion or it must be possible to disregard any part of the classification without interfering with the usefulness of the remaining parts.

Extension of the Dewey Decimal System of Classification.- Under the Dewey decimal system of which the present classification is an extension, classification is by subject, numbers being used to show the relative positions of the books, cards or other material. The numbers, therefore, show both what the material is (that is, its subject matter) and where the material is (that is, its location on the shelves or in the files). In the classification list the indentation and the figures prefixed to each item show the rank of each subject in the classification.

Accompanying the classification is an index which is arranged in the usual alphabetical order. References are made in this index to the subject classification number rather than to pages or to arbitrary shelf numbers. The index is used in determining the number to assign to a given item or material or to learn where to place it in the files. The index is also used by any person desiring to locate the material covering a given subject. The reference number tells him immediately where he will find all material on that and on related subjects.

Outline of Classification.- The whole subject of radio is put in its proper place in the Dewey classification - 621.384. The relation of this place to the general field is shown by the

following table:

Class	6000	Useful Arts
Division	20.	Engineering
Section	1.	Mechanical
	.300	Electrical
	.080	Communication
	.004	Radio

In a strictly radio library or office it is convenient to represent the figure 621.384 by R, and this abbreviation is used below in the further classification of radio. Thus -

R211 - Resonance Methods of Measuring Wave Length
R513 - Applications of Radio to Fog Signaling

Summary of Radio Classifications

Radio communication is divided into a general class and a number of other classes, as follows:

R000 - Radio Communication
R100 - Radio Principles
R200 - Radio Measurements and Standardization
R300 - Radio Apparatus and Equipment
R400 - Radio Communication Systems
R500 - Applications of Radio
R600 - Radio Stations - Operation and Management
R700 - Radio Manufacturing
(R800) - Non-Radio Subjects
R900 - Miscellaneous Radio.

Modifications and Variations.- While some of the details of the Dewey system seem at the present time to be illogical (for example, electrical engineering a subdivision of mechanical engineering), the system has been widely adopted and more confusion would result from attempting to change it into a more logical form than results from the arbitrary use of the established practice. In the present classification the Dewey system has been adopted and some of its general features are found specially advantageous. For example, all general material under a given class should be put under the class itself, (frequently having a final figure 0). The ninth division under any class is frequently reserved for items which are as yet of too small importance to classify separately. This should not, however, be confused with the first item under each class which is used for general material applied to many or all of the subdivisions under it.

The class (R800) is left vacant for future use. However, in a strictly radio library or office having little material other than radio to classify, it will be found convenient to use this space for non-radio subject matter. Such material

should be given its regular class number according to the Dewey system. If it were arranged in strictly numerical order; some of this material would come before radio and some after radio. But by choosing arbitrarily to use the space denoted by (R800) for this purpose it is possible to arrange the non-radio material in classified order, but to keep it subordinate to a larger volume of radio material. Thus a number of non-radio items are listed under (R800) in the complete table of class numbers below.

For users having only a small amount of material to classify, an abbreviated classification is suggested. This abbreviated classification is given separately before the main table. Obviously, other items may be added or some of these omitted depending on the individual needs.

Specific books or papers under a given class or subdivision may be denoted by a small letter, the assignment being according to subject, author, order of accession, or any other consideration depending on the circumstances.

In a card file of references to periodical literature it is convenient to arrange the cards under each final class or subdivision in alphabetical order by the names of subjects or authors.

Classification as to Form.-

The above classification is mainly by subject but an additional form distinction for general material is found useful in practice. For the further classification, as to form, of any subject the following divisions may be used. These figures are merely added to the last integer (omitting ciphers) of the number given in the classification. An example is given in the complete table of class numbers below under R620, Radio Stations, Operation and Management.

001	Statistics				
002	Quantities	Cost			
003	Contracts	Specifications			
004	Designs	Drawings			
005	Executive	Administrative	Rules		
006	Working	Maintenance			
007	Laws	Regulations			
008	Patents				
009	Reports of Tests	Bulletins			
01	Theory	Methods	Programs		
02	Textbooks	Outlines	Manuals		
03	Cyclopedias	Dictionaries			
04	Essays	Addresses	Lectures	Letters	Papers
05	Periodicals	Magazines	Reviews	Bibliography	Publications
06	Societies	Associations	Transactions	Exhibitions	
07	Education	Training	Museums		
08	Tables	Calculations	Charts	Maps	
09	History	Progress	Development	Biographical	

Thus: R4703 History of development of wire radio systems
or R6003 Contracts for radio stations.

Abbreviated Classification of Radio Subjects

For small collections or files in which detailed classification is not required, the following abbreviated list of classes may be useful:

R000	Radio Communication
R050	Books
R060	Societies
R090	History
R100	Radio Principles
R110	Radio Waves
R120	Antennas
R130	Electron Tubes
R140	Radio Circuits
R150	Generating Apparatus
R160	Receiving Apparatus
R190	Other Radio Principles
R200	Radio Measurements and Standardization
R210	Frequency Wave Length
R220	Capacity Dielectric Constant
R230	Inductance
R240	Resistance Decrement Phase Difference Power Loss
R250	Current
R260	Voltage
R270	Signal Intensity
R280	Properties of Materials
R290	Other Measurements
R300	Radio Apparatus and Equipment
R320	Antennas
R330	Electron Tubes
R340	Electron Tube Apparatus
R350	Generating Apparatus Transmitting Sets
R360	Receiving Apparatus Receiving Sets
R380	Parts of Circuits Instruments
R400	Radio Communication Systems
R410	Modulated Wave Systems
R411	Spark
R412	Radio Telephone Systems
R413	Low-Frequency Modulating Systems
R414	High-Frequency Modulating Systems
R420	Continuous Wave Systems
R421	High-Frequency Alternator
R422	Arc
R423	Electron Tube
R430	Interference Elimination
R440	Remote Control (by wire)
R450	Linkage
R460	Duplex and Multiplex Systems

R470	Wired Radio
R480	Relay Systems
R490	Other Systems
R500	Applications of Radio
R510	Navigation
R520	Aviation
R530	Commercial and Special Services
R540	Private
R550	Broadcasting
R560	Military Naval
R570	Distant Control by Radio
R580	Other Applications
R590	National Developments
R600	Radio Stations: Equipment, Operation and Management
R610	Equipment Station Descriptions
R620	Operation and Management
R700	Radio Manufacturing
R710	Factories
R720	Processes
R740	Sales
R800	Non-Radio Subjects
R900	Miscellaneous Radio

Complete Table of Class Numbers

R000	Radio Communication	
R001	Statistics	
R003	Contracts	
R004	Design	
R005	Executive	Administrative Personnel
R006		
R007	Laws Regulations	
R008	Patent Specifications	(These should ordinarily be distributed according to the subject of the patent).
R009	Reports	Bulletins R007.1 U.S. Laws and Regulations
R010	Research	R007.2 U. S. Inspector Service
R020	Textbooks	R007.3
R030	Terminology	Symbols R007.4 Canada
R040	Lectures	R007.5 British Empire (Except Canada)
R051	Publication	R007.6 France
R053	Periodicals	R007.7 Germany
R055	Bibliography	R007.8 Other countries
R060	Societies Meetings	R007.9 International Conference
R070	Education Training	
R071	Courses of Study	
R073	Training of Operators	
R080	Tables	
R082	Nomograms	
R083	Humor	
R090	History	
R090.1	United States	
R090.2	British Empire	
R090.3	France	
R090.4	Germany Austria	
R090.5	Italy Spain Portugal	
R090.6	Norway Sweden Denmark	
R090.7	Asia Africa	
R090.8	South America	
R090.9	Other Countries	
R091	Radio Telegraphy	
R094	Radio Telephony	
R097	Biographical	
R100	Radio Principles	
R110	Radio Waves	
R111	Electromagnetic Theory	
R112.1	Radiation	
R112.6	Absorption (Reception)	
R113	Transmission Phenomena	
R113.1	Fading	
R113.2	Daily Variations	Seasonal Variations
R113.3	Directional Variations	
R113.4	Ionization	Heaviside Layer
R113.5	Meteorological	
R113.55	Tropical Radio	
R113.6	Reflection	Refraction Diffraction

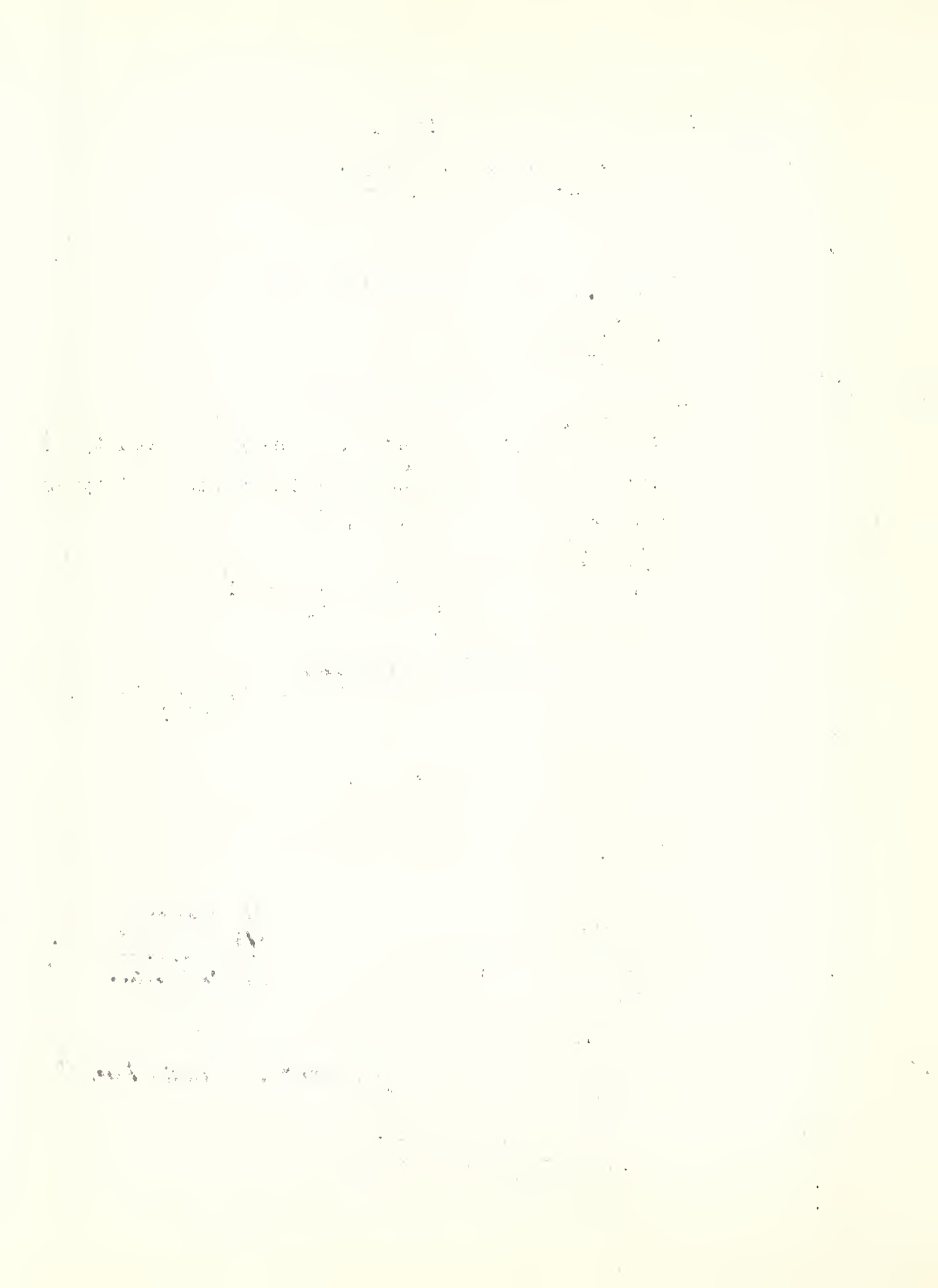
R113.7	Transmission Formulas	Range
R113.8	Eclipses	
R113.9	Wave Front Angle	
R114	Strays	
R115	Directional Properties	
R116	Waves on Wires	
R120	Antennas	
R121	Condenser Type Antennas (Ordinary elevated type)	
	with ground	
R122	Condenser Type Antennas (ordinary elevated type)	
	with counterpoise	
R123	Ground and Underground Antennas	
R124	Coil Antennas	
R125.1	Direction Finding	
R125.6	Directive Antennas (Transmitting in a particular direction)	
R126	Ground Connections	
R127	Antenna Constants	<i>(Radiation resistance)</i>
R128		
R129	Special Types	
R130	Electron Tubes	
R130.3	Nomenclature	
R130.4	Principles of Design	
R131	Characteristic Curves	General Properties
R132	Amplifying Action	<i>R132.1 Inductive Coupling</i>
R133	Generating Action	<i>R132.2 Capacitive "</i>
R134	Detector Action	<i>R132.3 Resistance "</i>
R134.5	Heterodyne Autodyne	<i>R134.6 Regenerative action</i>
R135	Modulating Action	<i>R134.7 Super- " "</i>
R136	Input Impedance	
R137	Output Impedance	
R138	Electron Emission	Ionization
R139	Other Electron Tube Principles	
R140	Radio Circuits	
R141	Simple Radio Circuits	
R141.1	Frequency	
R141.2	Resonance	
R141.3	Impulse Excitation	
R142	Coupled Circuits	
R142.1	Direct Coupling	
R142.3	Inductive Coupling	
R142.5	Capacitive Coupling	
R143	Damping Decrement	
R144	High-Frequency Resistance	
R145	Reactance	
R145.3	Inductance	
R145.5	Capacity	
R146	Harmonics	
R147	Beats	
R148	Modulation	
R148.1	Distortion	
R149	Rectification	
R150	Generating Apparatus	
R151		

1990

1950

R152 Spark Gaps
R153 Arcs
R154 Alternators
R155
R156 Transformers
R160 Receiving Apparatus
R170
R180
R190 Other Radio Principles
R200 Radio Measurements and Standardization
R201 General Methods and Apparatus
R201.2 Uses of Electron Tubes in Radio Measurements
R201.5 Shielding and Grounding
R201.6 High-Frequency Bridge
R201.7 Use of High-Frequency Oscillograph
R202 Resonance Methods
R203 Harmonic Methods
R204 Null Methods
R205 Substitution Methods
R210 Frequency Wave Length
R211 Resonance Methods
R212
R213 Harmonic Methods
R220 Capacity
R220.1 Capacity Meters
R223 Dielectric Constant
R225 Capacity of Coils
R230 Inductance
R231 Self Inductance
R235 Mutual Inductance
R240 Resistance Decrement Phase Difference Power Loss
R241 Resistance-Variation Method
R242 Reactance-Variation Method
R243 Substitution Method
R244 Calorimeter Methods (See also 536.6)
R250 Current
R251 Ammeters
R251.1 Hot-wire
R251.2 Thermoelement
R251.3 Current Transformer
R251.4 Electrodynamometer
R251.5 Einthoven Galvanometer
R251.6 Bolometer Bridge
R260 Voltage
R261 Electron Tube Voltmeters
R262 Sparking Distance
R263 Electrostatic Voltmeters
R264
R265
R266
R267
R268
R269 Other Voltmeters for Radio Frequencies

R270	Signal Intensity
R271	Shunted Telephone Method
R272	Audio-Frequency Comparison Method
R273	Radio-Frequency Comparison Method
R274	
R275	Modulation
R280	Properties of Materials
R281	Insulating Materials
R281.1	Laminated
R281.11	Phenolic Binders
R281.12	Shellac Binders
R281.13	Fibre
R281.2	Moulded
R281.21	Phenolic Binders
R281.22	Shellac Binders
R281.23	Pitch Binders
R281.31	Porcelain
R281.33	Glass
R281.35	Rubber
R281.37	Gutta Percha
R281.38	Mica
R281.383	Built-up Mica
R281.41	Textiles
R281.42	Paper
R281.426	Pulp Board
R281.43	Wood
R281.44	Wax
R281.45	Pitch
R281.46	Paraffin
R281.47	Varnish
R281.48	Shellac
R281.49	Oil
R281.60	Resins
R281.61	Natural Resins
R281.65	Synthetic Resins (<i>Redmanol</i>)
R281.70	
R281.71	Quartz
R281.72	Marble
R281.73	Granite
R281.74	Slate
R281.75	Lava
R281.76	Asbestos
R281.77	Sulphur
R281.78	Amber
R281.79	Celluloid
R281.80	Cellulose Esters
R281.81	Oxide Coatings
R281.82	Vitrified Clay Products
R281.83	Casein Products
R281.9	Miscellaneous Insulating Materials
R282	Electrolytes
R283	Magnetic Materials
R284	Conductors
R284.1	Metals
R284.11	Copper



R346	Radio Telephone Sets (Electron Tube)
R347	
R348	Use in Wire Systems
R350	Generating Apparatus Transmitting Sets
R351	Simple Oscillators
R352	Spark Gaps (See also R411)
R352.2	Quenched
R352.4	Rotary, Synchronous
R352.6	Rotary, non-synchronous
R353	Arc Converters (See also R422)
R354	High-Frequency Alternators (See also R421)
R355	High-Voltage Generators
R356	Transformers
R356.3	Resonance Transformers
R356.5	Induction Coils
R357	Frequency Changers
R358	Protective Devices
R359	Automatic Transmitters
R360	Receiving Apparatus Receiving Sets <i>Timed spark</i>
R361	
R362	
R363	Amplifiers (for electron tube amplifiers see R342)
R363.1	Magnetic
R363.2	Microphone
R364	Detectors, Crystal (For Electron Tube detectors See R341)
R364.1	Theory
R364.2	Practical Form
R364.3	Balanced Crystals
R365	Detectors and Rectifiers, Miscellaneous
R365.1	Magnetic
R365.2	Coherer
R365.3	Electrolytic
R366	Telephone Receivers
R366.2	Tuned
R366.3	Loud-Speaking Reproducers
R367	Automatic Recorders (See also <i>Telegraphone 621.385.91</i>)
R368	Audibility Meters
R370	
R380	Parts of Circuits Instruments
R381	Condensers
R382	Inductors
R382.4	Cellular Coils
R382.5	Couplers Oscillation Transformers
R383	Resistors <i>Spider web coils. H. Grid leak</i>
R384.1	Wavemeters
R384.3	Frequency Meters
R384.5	Decremeters
R385.1	Keys
R385.2	Buzzers
R385.3	Interrupters Tone Wheels Choppers (See also R427)
R385.5	Microphone
R386	Filters

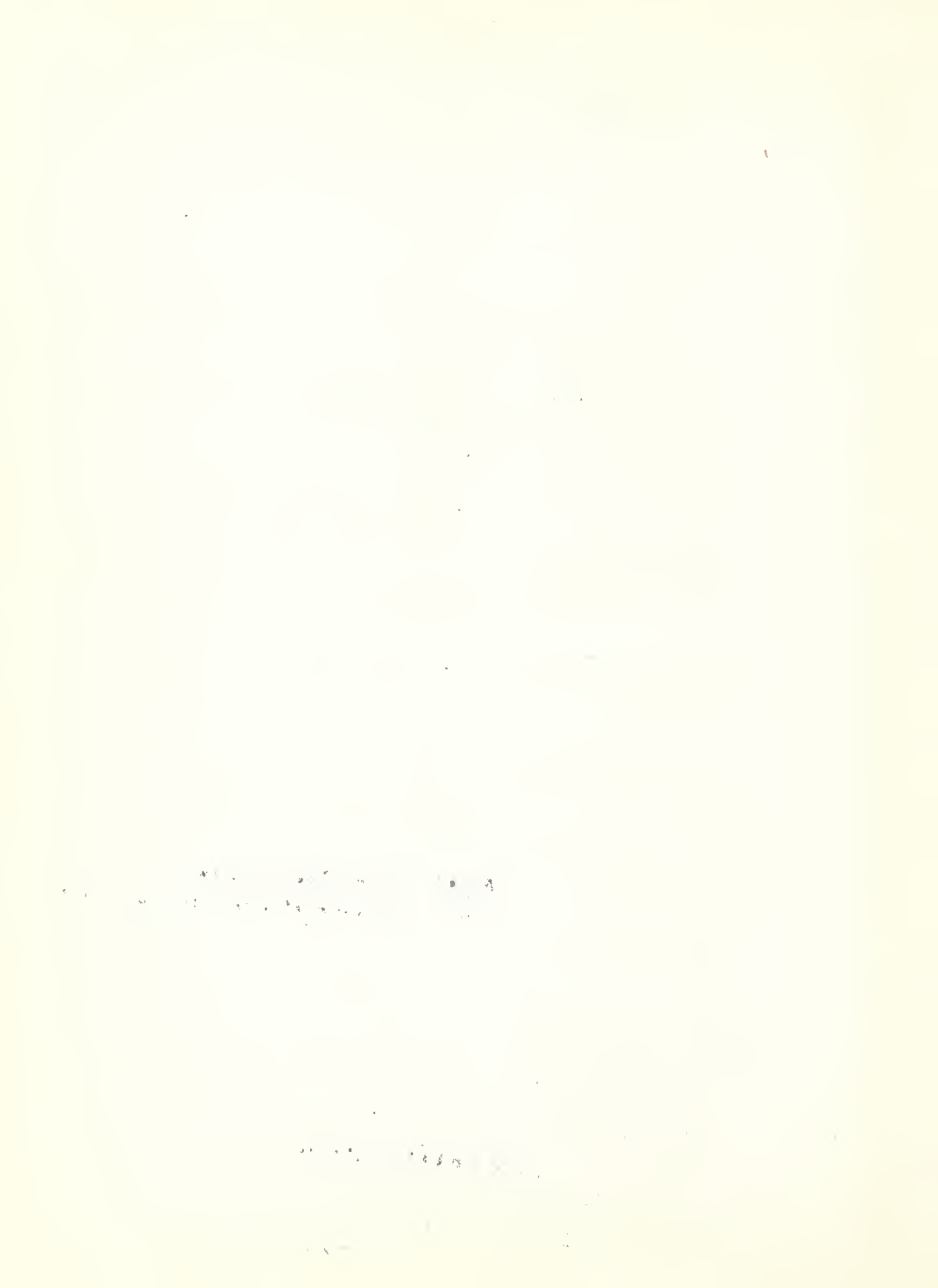
1. Photographic Recorder
2. Jet Relay
3. Electromagnetic
4. Telegraphone
5. Photographic
6. Automatic Printing Recorder

381.6

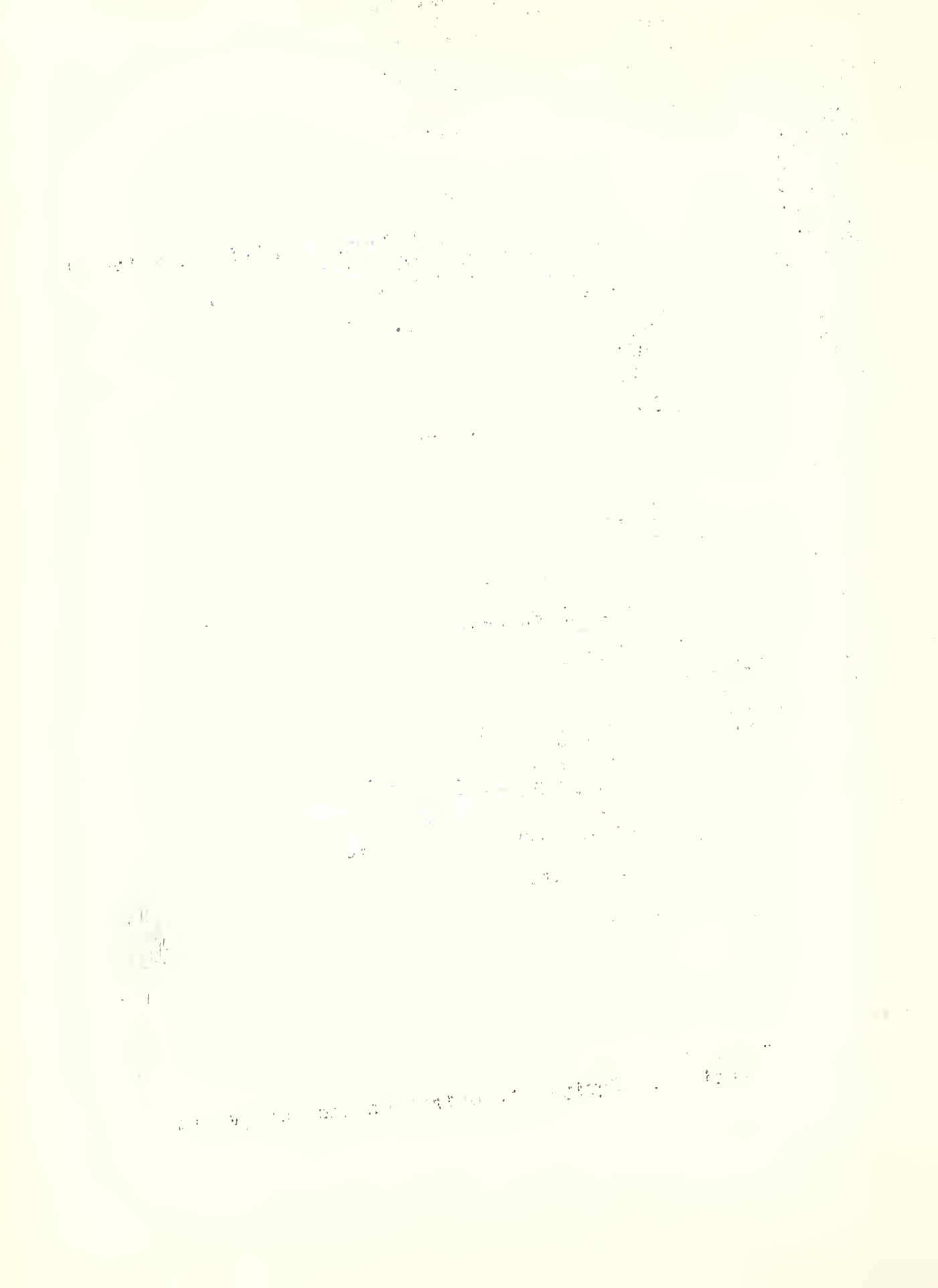
R387.1	Shields	
R387.5	Grounds	
R387.7	Insulators	
R388	Cathode-Ray Oscillograph	
R390		
R400	Radio Communication Systems	
R401	High Power	
R402	Short Wave	
R410	Modulated Wave Systems	
R411	Spark	
R411.2	Quenched	
R411.4	Rotary, Synchronous	
R411.6	Rotary, Non-synchronous	
R411.9	Other Spark Systems	
R412	Radio Telephone Systems	
R413	Low-Frequency, Modulating Systems	
R414	High-Frequency Modulating Systems	
R420	Continuous Wave Systems	
R421	High-Frequency Alternator	
R422	Arc	
R423	Electron Tube (Preferably use other more specific entries)	
R424	Timed Spark	
R425	Impulse Excitation	
R426	Beat Reception	
R427	Use of Receiving Interrupters and Tone Wheels	
R428		
R429		
R430	Interference Elimination (See also R386, filters)	
R431	Strays	
R432	Stations	
R433		
R434		
R435	Secrecy Systems	
R440	Remote Control (by Wire)	
R450	Linkage	
R460	Duplex and Multiplex Systems	
R470	Wire Radio	
R480	Relay Systems	
R490	Other Systems	
R491		
R492	Buzzerphone	
R493	Fullerphone	
R494		
R495	Tree Telegraphy	
R500	Applications of Radio	
R510	Navigation (See also R570, Distant Control by Radio)	
R511	Distress Signals	
R512	Radio Beacons	
R513	Fog Signaling	
R514	Radio Compass	
R515	Submarine	
R520	Aviation	
R520.3	Radio telephony on Aircraft	
R521	Receiving on Aircraft	

R485 High-Speed systems
R487 Automatic Printing system

Life Saving Service



R521.1 Direction Finding
R521.3 Elimination of Magneto Interference
R521.5 Helmets for Telephone Receivers
R522 Transmitting from Aircraft
R522.3 Microphone Design
R523 Receiving from Aircraft
R524 Transmitting to Aircraft
R524.3 Localized Landing Signals
R525 Antennas
R530 Commercial and Special Services
R531 Traffic
R531.1 Codes and Ciphers *R531.15 Speed of Code Reception*
R531.2 Station Call Letters
R531.3 Abbreviations
R531.4 Alphabets, Morse & Continental (International)
R531.5 Relations with Land Lines
R531.6 Relations with Cables
R531.7 Rates
R532 Press
R533 Railroad
R534 Agriculture
R535 Forestry
R536 Mining
R537 Power Transmission Lines
R540 Private
R541
R542
R545 Amateur
R550 Broadcasting
R551 Time Signals
R551.1 Longitude Determinations
R552
R553 Meteorological Signals
56 R554
R555 Standard Waves *Market reports*
R560 Military
R565 Naval
R570 Distant Control by Radio
R580 Other Applications
R581 Transmission of Power by Radio
R582 Transmission of Photographs
R583 Therapeutics
R584 High-Frequency Electric Furnaces
R585 Radio Toys
R590 National Developments
R591 United States
R592 British Empire
R593 France
R594 Germany
R595
R596
R597
R598
R599 Other Countries
R600 Radio Stations: Equipment, Operation and Management



R610	Equipment	Station Descriptions
R611		Long Wave Stations
R612		Short Wave Stations
R613		Ship Stations
R614		Direction Finder Stations
R620	Operation and Management	
R620.01		Statistics
R620.02		Costs
R620.03		Contracts
R620.04		Drawings
R620.05		Administrative Executive
R620.06		Working and Maintenance
R620.063		Personnel
R620.064		Operating Routine. Schedules of Transmission.
R620.065		Regulation and Control
R620.068		Testing
R620.069		Repairs and Renewals (General. A specific repair belongs with the part repaired.)
R620.07		Regulations Rules
R620.08		Installation
R620.09		Reports and Bulletins
R700	Radio Manufacturing	
R700.1		Statistics
R700.2		Costs
R700.3		Contracts
R700.4		Drawings
R700.5		Administrative Executive
R700.6		Operation and Maintenance
R700.69		Repairs and Renewals
R700.7		Regulations Rules
R701	Materials and Equipment	(Sources, etc.)
R701.2		Raw Materials
R701.4		Tools Machines
R710	Factories	
R710.1		Location
R710.4		Organization Administration
R710.5		Mechanics and Laborers
R711		Drafting
R712		Woodworking Shop
R713		Machine Shop
R719		Other Shops and Departments
R720	Processes	
R730		
R740	Sales	
R741		
R742		
R743		
R744		Advertising
(R800)	Non-Radio Subjects	
		(The numbers here assigned, with the exception of those marked with an x, are taken from the Dewey Decimal Classification.)
347.7		Patent Practice
x 353.821		Bureau of Standards
383		Postal Service, Aerial Mail Service
		(See also Aeronautics, 629.13)

510	Mathematics
510.8	Slide Rules
511	Arithmetic
512	Algebra
512.82	Complex Variables Imaginaries
513	Geometry
514	Trigonometry
515	Descriptive Geometry
516	Analytic Geometry
x 516.12	Nomography Graphical Methods
517	Calculus
519	Probabilities
520	Astronomy
526	Geodesy
526.8	Map Projections
530	Physics
531	Mechanics
532	Hydrostatics
533	Pneumatics
533.85	Vacuum Apparatus
534	Sound
534.3	Tuning Forks
534.83	Signals in Navigation
535	Light (<i>for Light Signaling see 623.73/</i>)
535.3	Photoelectric Phenomena
536	Heat
636.33	Radiation- General Theory
537	Electricity
537.1	Theory of Electricity
537.23	Electrostatic Generators
x 537.26	Corona Discharge
537.4	Lightning
537.6	Electrodynamics
x 537.61	Negative Resistance
x 537.63	Corbino Effect
x 537.65	Piezoelectric Phenomena
x 537.67	Experimental Plotting of Electrical Fields
537.7	Wave Form Analysis
537.87	Physiological Electrical Phenomena
538	Magnetism
539	Molecular Physics
541.3 540	Chemistry <i>Physical Chemistry</i>
546.432	Radioactivity
550	Geology
621 551.5	Weather Meteorology <i>Mechanical Engineering.</i>
621.3	Electrical Engineering
	(This designation may be abbreviated, letting 621.3=E)
621.313	Electric Generators Electric Motors
621.313.2	Direct-Current Machinery
621.313.23	Direct-Current Generators
621.313.24	Direct-Current Motors
621.313.25	Motor-Generators
621.313.26	Dynamotors
621.313.3	Alternating-Current Machinery
621.313.7	Rectifiers
621.313.73	Mercury-Vapor Rectifiers

621.314.3	Transformers
621.314.6	Choke Coils
621.314.7	Induction Coils
621.317	Switchboards
621.317.3	Switches
621.317.4	Rheostats
621.319.2	Transmission Lines
621.325	Incandescent Arcs
621.326	Incandescent Filament Lamps
621.327.4	Mercury Vapor Tubes (Lamps)
621.327.7	X-Ray Tubes
621.353	Batteries, Primary
621.354	Batteries, Secondary (Storage)
x 621.354.3	Battery Charging Devices
621.374.2	Wheatstone Bridges
621.374.3	Voltmeters
x 621.374.33	Electrometers
x 621.374.41	Ammeters
x 621.374.45	Galvanometers
621.374.6	Wattmeters
x 621.374.63	Electrodynamometers
621.374.7	Oscillographs
621.38	Electric Communication
621.382	Telegraphy
621.382.4	High-Speed Telegraphy
621.382.8	Submarine Cable
x 621.382.92	Ground Telegraphy
621.382.94	Induction Signaling
621.383.21	Relays
621.385	Telephony
x 621.385.91	Telegraphphone
x 621.385.93	Thermophone
x 621.385.95	Condenser Transmitters
621.39	Other Applications of Electricity
623.731	Light Signals
623.8	Steamships
629.13	Aeronautics
629.145	Aerial Navigation
629.18	Airplane Construction
658	Business Methods
R900	Miscellaneous

Acknowledgments

The general scheme used in the above classification follows the decimal classification and relative index of Melvil Dewey, published by the Forest Press, Lake Placid, N.Y. An extension of the Dewey Decimal System of classification applied to engineering industries by L.P. Breckenridge and G.A. Goodenough, has been issued by the University of Illinois Engineering Experiment Station as Bulletin No. 9, (1912). Both the Dewey classification and the University of Illinois extension give a short classification of radio communication but the recent advances in this subject have caused it to outgrow these limitations. Valuable criticism of a preliminary radio subject classification have been received from Mr. Arthur Bessey Smith and from Mr. Harrison W. Craver, and

it is partly owing to their recommendation and to the widespread use of the Dewey system that the decimal classification has been adopted. Attention is also called to a "Proposed Classification for an Engineering Library" published in the Transactions of the American Society of Civil Engineers, volume 82, page 1618, December 1918. The classification there proposed is decimal in form but departs quite radically from the Dewey system. The classification of radio there is very meager.

Index to Radio Classification

To use this index, find the subject desired in its alphabetical place in the following list. The number after it is its class number, and refers to the place where the topic will be found, in numerical order of class numbers, on the shelves or in the subject catalogs.

All class numbers are decimals: i.e., R251.1, Hot-wire Ammeters, comes before R260, Voltage Measurements. Labels on the shelves, drawer fronts or cards, guide readily to the class number sought.

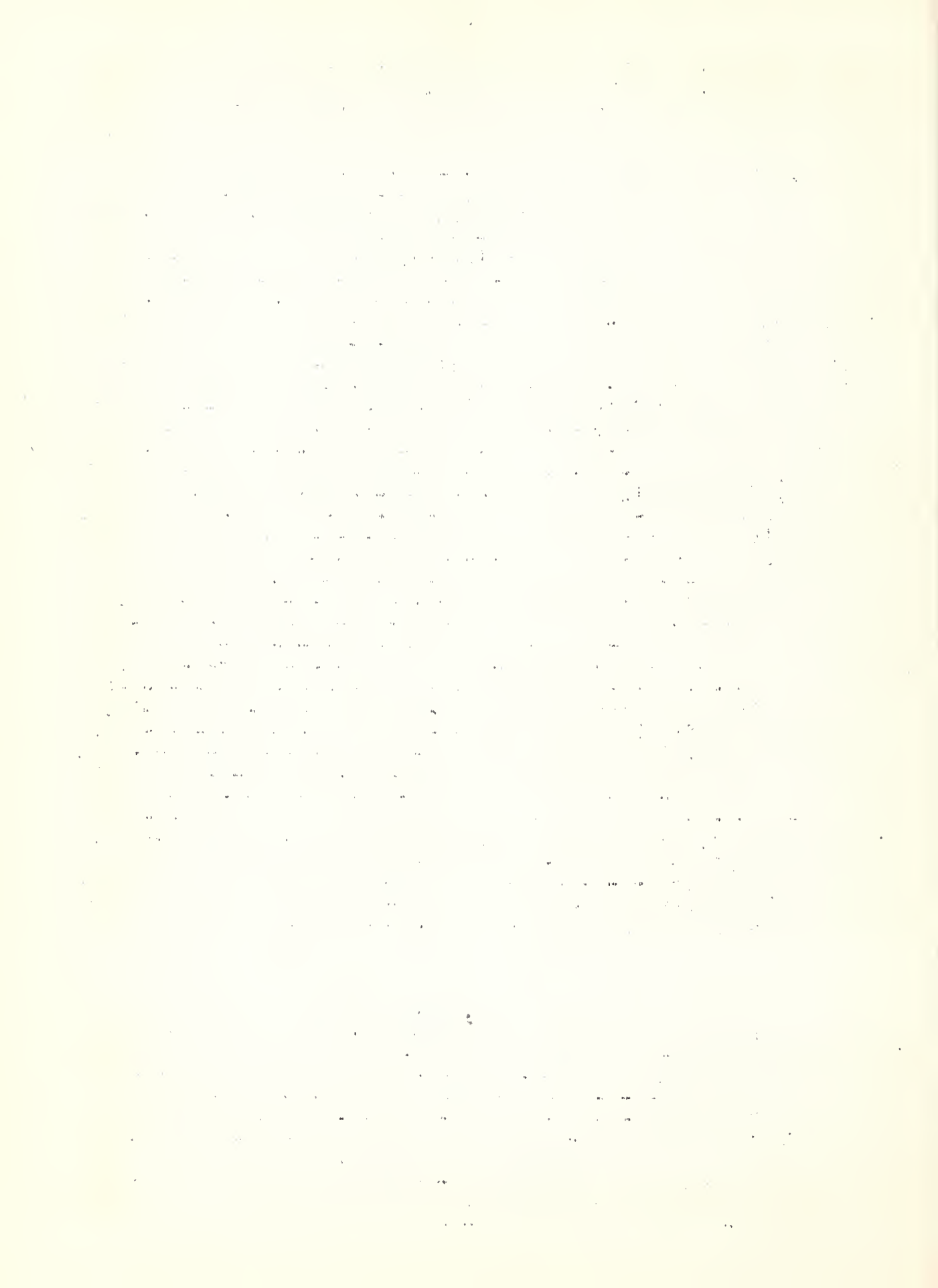
Under this class number will be found the resources of the library on the subject desired. Other subjects near the one sought may often be consulted with profit, e.g., Electron Tubes is the topic wanted and the index refers to R330, but R340, Electron Tube Apparatus, also contains much on the subject of Electron Tubes, as well.

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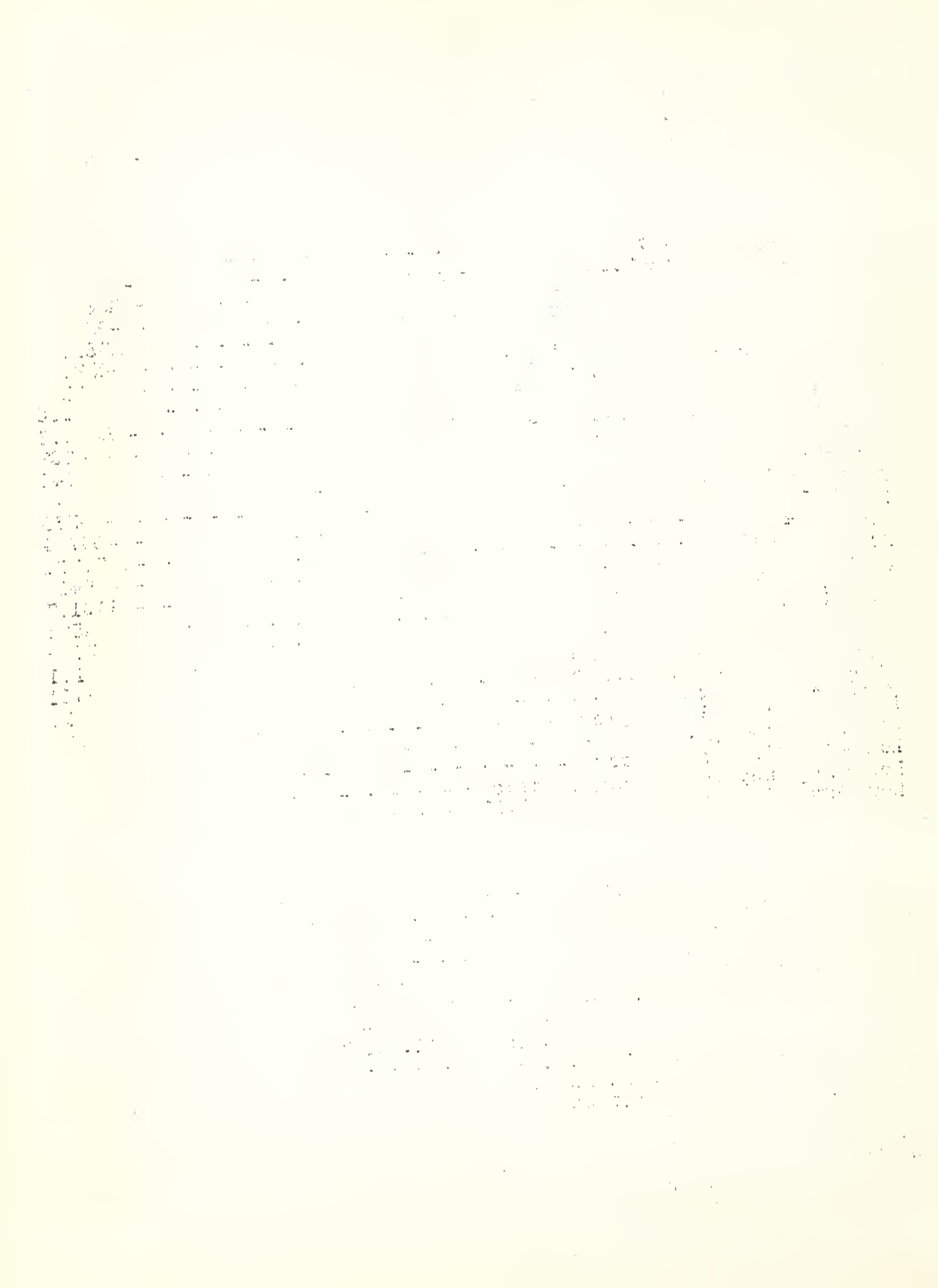
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